

Application No.: 09/817,843

Docket No.: 20135-00310-US

REMARKS

Claims 1-3, 17-21 and 35-37 are now pending in this application. Each of the pending claims defines an invention that is novel and unobvious over the cited art. Favorable consideration of this case is respectfully requested.

Rejection Under 35 U.S.C. § 102(e)

Claims 1-3, 9 and 17-21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Elenius et al. (US 6,441,487). Applicants respectfully traverse.

Applicants note that anticipation requires the disclosure, in a prior art reference, of each and every limitation as set forth in the claims.¹ There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. §102.² To properly anticipate a claim, the reference must teach every element of the claim.³ "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference".⁴ "The identical invention must be shown in as complete detail as is contained in the ...claim."⁵ In determining anticipation, no claim limitation may be ignored.⁶

Regarding claim 1, the Examiner cites Elenius figures 1 and 2 as showing an electronic package comprising a dielectric substrate 22 having a major surface (top surface) and a conductive foil 30 having a smooth portion laminated to the dielectric substrate 22 major surface.

Applicants traverse on the ground that element 22 in Elenius is not a "substrate." Instead, element 22 of Elenius is a "wafer passivation layer."⁷ The wafer passivation layer is described as "applied over the front surface of semiconductor wafer 14."⁸ These elements are shown in figure 2

¹ *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985).

² *Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).

³ See MPEP § 2131.

⁴ *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

⁵ *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

⁶ *Pac-Tex, Inc. v. Amerace Corp.*, 14 USPQ2d 187 (Fed. Cir. 1990).

⁷ See lines 20-22 of column 6 of Elenius.

⁸ *Id.*

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of Elenius. The wafer passivation layer 22 therefore cannot correspond to the "dielectric substrate" recited in claim 1. In the Final Office Action of 04/24/03, the Examiner defines insulating layer 22 as a "substrate" and relies for support on the American Heritage Dictionary. The cited dictionary may be relevant for "general definitions and usages."⁹ However, "technical dictionaries" provide "specialized meanings as used in particular fields of art."¹⁰ International SEMATECH,¹¹ of which the present assignee is a member, provides "specialized," industry standard definitions relevant to the art of the present invention. A "substrate" for the instant art is a wafer.¹² Elenius provides "a wafer passivation layer 22 applied over the front surface of semiconductor wafer 14." In view of the industry standard definition, it is improper for the Examiner to define passivation layer 22 as the substrate. Passivation layer 22, therefore cannot correspond to the "dielectric substrate" recited in claim 1.

The Examiner equates the redistribution trace 30 of Elenius with the "conductive foil" recited in claim 1. Claim 1 requires that the conductive foil be "laminated to said major surface" of the substrate. By contrast, Elenius' redistribution trace 30 is formed over the wafer passivation layer 22, and is not laminated to a major surface of the wafer 14. The invention recited in claim 1 therefore differs from Elenius, and the rejection is improper.¹³

Regarding claim 17, the Examiner states that Elenius discloses a semiconductor substrate 12 having a major surface, a first mechanically compliant dielectric layer 22, a first contact pad 18, a second compliant dielectric layer 24, a mask layer 32, and a solder ball 28.

Claim 17, as amended, recites a "second electrical contact pad formed in said second opening and extending over a portion of said first electrical contact pad and contacting said first electrical contact pad...."

⁹ *Inverness Medical Switzerland v. Warner Lambert Co.*, 309 F.3d 1373, 1378 (Fed. Cir. 2002).

¹⁰ *Id.*

¹¹ ISMT began in 1987 as SEMATECH (Semiconductor Manufacturing Technology), a consortium of U.S. chipmakers that was formed, in partnership with the U.S. government, to help restore American leadership in semiconductor manufacturing. After fulfilling its original mission in the mid-1990s, the consortium withdrew from federal funding and broadened its scope to tackle advanced technology challenges identified in the ITRS. With the addition of new offshore members, the consortium evolved into International SEMATECH in 2000. (See www.sematech.org).

¹² Substrate. n. in the manufacture of semiconductors, a wafer that is the basis for subsequent processing operations in the fabrication of semiconductor devices or circuits. [ASTM F1241]. SEMATECH Dictionary: http://www.sematech.org/public/publications/dict/ste_to_sz.htm.

¹³ See *Scripps Clinic and Research Foundation*, 18 USPQ2d 1001.

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By contrast, Elenius discloses a conductive bond pad 18 that is remote from the solder bump pad 26 (see figure 2 of Elenius). Therefore, Elenius does not disclose a second contact pad as recited in amended claim 17.

Further, claim 17 recites a "first mechanically compliant dielectric layer." Elenius is silent as to the mechanical properties of the dielectric layer 24.

Elenius therefore fails to disclose the combination of elements recited in either of claims 1 or 17, and the rejection under 35 U.S.C. § 102(e) should be withdrawn.

Rejection Under 35 U.S.C. § 103(a)

Claims 35-37 stand rejected under 35 U.S.C. § 103(a) as being obvious over Elenius et al. in view of Gotoh (US 6,204,454). Applicants respectfully traverse.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations.¹⁴ Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.¹⁵

The Examiner acknowledges that Elenius is silent regarding the surface roughness of the foil. The Examiner cites Gotoh as teaching surface roughness. However, the cited art fail to provide incentive for the proposed combination. As the Examiner acknowledges, Gotoh relates to increase the stability of an electrical connection. (Col.5, lines 34-41). However, the present invention is directed at a means of decreasing the stability of a connection. Gotoh specifically teaches away from the present invention. "Teaching away" from the invention is a *per se*

¹⁴ See MPEP §2143.

¹⁵ *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

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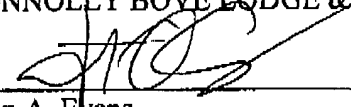
demonstration of nonobviousness.¹⁶

Conclusion

In light of the above amendments and remarks, independent claims 1 and 17 define over the patents cited by the Examiner. The dependent claims are allowable due to their dependence upon an allowable independent claim, and for further patentable features recited therein. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejections of the claims and to pass the application to issue.

Attached hereto is a marked-up version of the changes made to claim 17 by this amendment. Although no fees are believed to be due with this amendment, the Director is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185.

Respectfully submitted,
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¹⁶ *U.S. v. Adams*, 338 U.S.39, 148 U.S.P.Q. 479 (1966).

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